

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number

Substitute for form 1449A/PTO

Complete if Known

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

Sheet

1

of

2

Application Number	10/788,546
Filing Date	2/27/2004
First Named Inventor	Daniel A. Lidar
Art Unit	2872
Examiner Name	N/A
Attorney Docket Number	706700-999181

U.S. PATENT DOCUMENTS

Examiner Initials	Cite No. ¹	Document Number Number - Kind Code ² (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	AA	US- 5,768,297	6-16-1998	Shor	
	AB	US- 5,917,322	6-29-1999	Gershenfeld et al.	
	AC	US- 6,128,764	10-03-2000	Gottesman	
	AD	US- 6,472,681 B2	10-29-2002	Kane	
	AE	US- 6,597,010 B2	07-22-2003	Eriksson et al.	
	AF	US- 2003/0224944A1	12-04-2003	Il'ichev et al.	
	AG	US- 2003/0023651 A1	01-30-2003	Whaley et al.	
	AH	US- 2004/0000666 A1	01-01-2004	Lidar et al.	
	AI	US- 2004/0077503 A1	04-22-2004	Blais et al.	
	AJ	US- 2004/0119061 A1	06-24-2004	Wu et al.	

FOREIGN PATENT DOCUMENTS

Examiner Initials	Cite No. ¹	Foreign Patent Document Country Code ³ - Number ⁴ - Kind Code ⁵ (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T ⁶
	AK	WO- 99/14614 A1	03-25-1999	Kane		

OTHER ART (Including Author, Title, Date, Pertinent Pages, Etc.)

AL	Bacon, D., J. Kempe, D.A. Lidar, and B. Whaley, 2000, "Universal Fault-Tolerant Computation on Decoherence-Free Subspaces," Phys. Rev. Lett. 85 , pp. 1758-1761.
AM	Barenco, A., C.H. Bennett, R. Cleve, D.P. DiVincenzo, N. Margolus, P. Shor, T. Sleator, J.A. Smolin, and H. Weinfurter, 1995, "Elementary gates for quantum computation," Phys. Rev. A 52 , 3457-3467.
AN	Bonesteel, N. E., D. Stepanenko, and D. P. DiVincenzo, 2001, "Anisotropic Spin Exchange in Pulsed Quantum Gates," Phys. Rev. Lett. 87 , 207901.
AO	Burkard, G., and D. Loss, 2002, "Cancellation of Spin-Orbit Effects in Quantum Gates Based on the Exchange Coupling in Quantum Dots," Phys. Rev. Lett. 88 , 047903.
AP	Burkard, G., D. Loss, and D.P. DiVincenzo, 1998, "Coupled quantum dots as quantum gates," arXiv.org: cond-mat/9808026.

	AQ	Byrd, M.S., L.-A. [redacted], D.A. Lidar, 2004, "Overview of Quantum [redacted] for Prevention and Leakage Elimination," arXiv.org:quant-ph/0402098 also published as Journal of Modern Optics 51 , p. 2449 (2004).
	AR	Cummins, H.K., G. Llewellyn, and J.A. Jones, 2002, "Tackling Systematic Errors in Quantum Logic Gates with Composite Rotations," arXiv.org: quant-ph/0208092.
	AS	D'Ariano, G.M., and P. Lo Presti, 2001, "Quantum Tomography for Measuring Experimentally the Matrix Elements of an Arbitrary Quantum Operation," Phys. Rev. Lett. 86 , pp. 4195–4198.
	AT	DiVincenzo, D.P., D. Bacon, J. Kempe, G. Burkard, and K.B. Whaley, 2000, "Universal Quantum Computation with the Exchange Interaction," Nature 408 , pp. 339–342 (2000).
	AU	DiVincenzo, D.P., 2001, "The Physical Implementation of Quantum Computation", in Scalable Quantum Computers, Braunstein and Lo, Eds., Wiley-VCH Verlag GmbH, Berlin, also published as arXiv.org: quant-ph/0002077 (2000).
	AV	Dodd, J.L., M. A. Nielsen, M.J. Bremner, and R.T. Thew, 2002, "Universal quantum computation and simulation using any entangling Hamiltonian and local unitaries," Phys. Rev. A 65 , 040301.
	AW	Gea-Banacloche, J., 2000, "Error correction for mutually interacting qubits," Phys. Rev. A 62 , 062313.
	AX	Kane, B.E., 1998, "A silicon-based nuclear spin quantum computer," Nature 393 , pp. 133–137.
	AY	Kane, B.E., 2000, "Silicon-based Quantum Computation," Fortschr. Phys. 48 , pp. 1023–1041.
	AZ	Kavokin, K.V., 2001, "Anisotropic exchange interaction of localized conduction-band electrons in semiconductors," Phys. Rev. B 64 , 075305.
	BA	Kempe, J., D. Bacon, D. A. Lidar, and K. B. Whaley, 2001, "Theory of decoherence-free fault-tolerant universal quantum computation," Phys. Rev. A 63 , 042307.
	BB	Knill, E., R. Laflamme, and L. Viola, 2000, "Theory of Quantum Error Correction for General Noise," Phys. Rev. Lett. 84 , 2525–2528.
	BC	Loss, D., and D.P. DiVincenzo, 1998, "Quantum computation with quantum dots," Phys. Rev. A 57 , pp. 120–126.
	BD	Makhlin Yu., G. Schön, and A. Shnirman, 2001, "Quantum-State Engineering with Josephson-Junction Devices," Rev. of Mod. Phys. 73 , pp. 357–401.
	BE	Ollerenshaw, J.E., D.A. Lidar, and L.E. Kay, 2003, "A Magnetic Resonance Realization of Decoherence-Free Quantum Computation," arXiv.org: quant-ph/0302175,
	BF	Palao, J.P., and R. Kosloff, 2002, "Quantum Computing by an Optimal Control Algorithm for Unitary Transformations," Phys. Rev. Lett. 89 , 188301.
	BG	Preskill, J., 1998, "Reliable Quantum Computers," Proc. R. Soc. London, Ser. A 454 , pp. 385–410.
	BH	Ramos, R.C., M.A. Gubrud, A.J. Berkley, J.R. Anderson, C.J. Lobb, and F.C. Wellstood, 2001, "Design for Effective Thermalization of Junctions for Quantum Coherence," IEEE Trans. App. Supercond. 11 , pp. 998–1001.
	BI	Steane, A.M., 2002, "Overhead and noise threshold of fault-tolerant quantum error correction," arXiv.org: quant-ph/0207119.
	BJ	Steane, A., C.F. Roos, D. Stevens, A. Mundt, D. Leibfried, F. Schmidt-Kaler, and R. Blatt, 2000, "Speed of ion-trap quantum-information processors," Phys. Rev. A 62 , 042305.
	BK	Tian, L., and S. Lloyd, 2000, "Resonant cancellation of off-resonant effects in a multilevel qubit," Phys. Rev. A 62 , 050301.
	BL	Wu, L.-A., and D. A. Lidar, 2002, "Universal quantum logic from Zeeman and anisotropic exchange interactions," Phys. Rev. A 66 , 062314.
	BM	Wu, L.-A., and D.A. Lidar, 2003, "Dressed Qubits," Phys. Rev. Lett. 91 , 097904.
	BN	Yu, Y., S. Han, X. Chu, S.-I Chu, and Z. Wang, 2002, "Coherent Temporal Oscillations of Macroscopic Quantum States in a Josephson Junction," Science 296 , pp. 889–893.
Examiner Signature		Date Considered

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Applicant's unique citation designation number (optional). ² See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.